



General Ion Chamber Performance Specifications	
Specification	Description
Minimum Response Time	Less than 1mS.
Output Sensitivity (Gain Range)	Adjustable from 0.046V/μGy to 0.91V/μGy @76kV. Additional output sensitivities available upon request.
Ion Chamber Potential	+75VDC ±10V (internally generated).
Output Reproducibility	Less than ±0.045 Coefficient of Variation.
Integrator Drift	No more than 50mV/8 seconds at standard AID gain setting.
Output	Linear ramp with no more than ±5% deflection in full output scale.
Field Matching	Outputs of multi-field chambers are individually adjustable to within 5% of one another.
X-ray % Transmission	No less than 85% from 50kV to 150kV with 2.5mm to 3.0mm total aluminum equivalent beam filtration from the x-ray tube and collimator.
Internal Structure Imaging	Images caused by internal structures will result in an optical density variation no greater than 0.01 O.D. for exposures at 50kV using a 2 inch Plexiglas phantom, 2.5mm to 3.0mm aluminum equivalent beam filtration and a film density of 1.2 ± 0.1 O.D. with 400 ASA or equivalent screen-film combination.
Power Supply Requirement	± 11.4VDC to ±15.75 VDC unless specified otherwise.
Cable Connection	Shielded 24AWG cable. Standard cable length is 45 feet (13.7 meters).

AID Compatible <sup>1</sup> ICX Series Ion Chamber Signal Specifications	
Signal	Comments
Field Selects	Pulling the field select lines to ground (0VDC) will select the field. For spot ion chambers the field is always selected.
Reset (Exposure Duration)	Pulling this line to ground (<3VDC) beginning at exposure start and lasting for entire exposure duration allows the integrator to operate.
Output <sup>2</sup>	Time integrated signal rising from 0VDC to a maximum of at least 80% of the positive supply voltage (9.6VDC for 12VDC supply). The slope of this signal is directly proportional to the amount of x-ray flux received.
Positive Supply Voltage Range	+11.4VDC to +15.75VDC less than 85 mA.
Negative Supply Voltage Range	-11.4VDC to -15.75VDC less than 85 mA.
Ground	Circuit Common (0VDC). The ion chamber frame and pre-amp chassis are also tied to ground.

<sup>1</sup> AID compatible means that the input and output signals will interface with Advanced Instrument Development, Inc's Expos-AID™ Automatic Exposure Control. This same configuration will also interface with Acoma, Control-X, CPI, Del Medical (Gendex), Electromed (EMD, Triton), OEC, Quantum Medical Imaging, Sedecal (Innerscan), Shimadzu (with PH CONT-2002 AEC board), Summit Industries, etc.

<sup>2</sup> Negative-going output signals are jumper selectable.



GE, Fischer Compatible ICX Series Ion Chamber Signal Specifications	
Signal	Comments
Field Selects	Driving the field select lines high (+15VDC or +24VDC) will select the field. For spot ion chambers the field is always selected.
Reset (Exposure Duration)	Driving the reset line high (+15VDC or +24VDC) beginning at exposure start and lasting for entire exposure duration allows the integrator to operate.
Output	Time integrated signal rising from 0VDC to a maximum of at least 80% of the positive supply voltage (12VDC for 15VDC supply). The slope of this signal is directly proportional to the amount of x-ray flux received.
Positive Supply Voltage Range	+11.4VDC to +15.75VDC less than 85 mA.
Negative Supply Voltage Range	-11.4VDC to -15.75VDC less than 85 mA.
Ground	Circuit Common (0VDC). The ion chamber frame and pre-amp chassis are also tied to ground.

Philips Compatible ICX Series Ion Chamber Signal Specifications	
Signal	Comments
Field Selects	Driving the field select lines high (+15VDC) will select the field. For spot ion chambers the field is always selected.
Reset (Exposure Duration)	Driving the reset line high (+15VDC) beginning at exposure start and lasting for entire exposure duration allows the integrator to operate.
Output	Time integrated signal rising from 2VDC to a maximum of at least 80% of the positive supply voltage (36VDC for 45VDC supply). The slope of this signal is directly proportional to the amount of x-ray flux received.
Positive Supply Voltage Range	+43VDC to +49VDC.
Negative Supply Voltage Range	-11.4VDC to -15.75VDC.
Ground	Circuit Common (0VDC). The ion chamber frame and pre-amp chassis are also tied to ground.

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Siemens Compatible ICX Series Ion Chamber Signal Specifications	
Signal	Comments
Field Selects	Driving the field select lines high ( $\geq +12\text{VDC}$ ) will select the field. For spot ion chambers the field is always selected.
Reset (Exposure Duration)	Not applicable
Output	Positive DC level output signal is directly proportional to the amount of x-ray flux received.
Positive Supply Voltage Range	+11.4VDC to +15.75VDC less than 85 mA.
Negative Supply Voltage Range	-11.4VDC to -15.75VDC less than 85 mA.
Ground	Circuit Common (0VDC). The ion chamber frame and pre-amp chassis are also tied to ground.

Toshiba Compatible ICX Series Ion Chamber Signal Specifications	
Signal	Comments
Field Selects	The external switch will select the field.
Reset (Exposure Duration)	Not applicable
Output	Negative DC level signal ranging from 0VDC to a maximum of at least 80% of the supply voltage (+9.6VDC for +12VDC supply). The amplitude of this signal is directly proportional to the amount of x-ray flux received.
Positive Supply Voltage Range	+11.4VDC to +15.75VDC less than 85 mA.
Negative Supply Voltage Range	-11.4VDC to -15.75VDC less than 85 mA.
Ground	Circuit Common (0VDC).